

WATER QUALITY ENHANCEMENT TECHNIQUES FOR RESERVOIRS AND TAILWATERS

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Development of physical and numerical models to assist with the design and to evaluate performance of selective withdrawal structures. A few examples include:

- ! Physical and numerical models of the selective withdrawal structures at Shasta, Hungry Horse, and Glen Canyon Dams.
- ! Laboratory and field studies of the temperature control curtains in Whiskeytown and Lewiston Reservoirs
- ! Field evaluation of the performance of selective withdrawal structures at Shasta, Folsom, and Hungry Horse Dams. Field studies include measurement of reservoir stratification, flow fields around hydraulic structures, and determination of head losses.

Perform studies to improve reservoir release water quality. For example:

- Studies to evaluate potential to control release temperatures below Grand Coulee Dam
- A field study to determine the fate of Las Vegas Wash inflows to Lake Mead
- Participation in value engineering workshops related to reservoir water quality and techniques to meet water quality standards
- Total dissolved gas research (Contact: Kathy Frizell):
 - Grand Coulee Dam operational and structural modifications have been investigated using analytical and physical hydraulic models for TDG abatement.
 - Research is currently being performed on a prototype scale of the total dissolved gas characteristics of stepped spillways.
- Field testing of turbine aeration to improve DO levels in powerplant releases.
(Contact: Tony Wahl)



Figure 1. Aerial Photograph of the Shasta TCD, Penstock and powerplant. The Shasta TCD was added to Shasta Dam to allow operators manage a limited cold water resource.